ARTERIAL SPIN LABELING, DIFFUSE CORRELATION SPECTROSCOPY, TIME RESOLVED NEAR INFRARED SPECTROSCOPY - STUDY ON THE BRAIN CORTEX PERFUSION

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Time resolved near infrared spectroscopy (tNIRS) and diffuse correlation spectroscopy (DCS) are the novel advanced optoelectronic techniques for brain perfusion and oxygenation assessment. These methods could be applied for the clinical monitoring of the patient conditions at bedside or in surgery room.

The aim of the study is to investigate the results from the optoelectronic methods trNIRS and DCS and arterial spin labeling (ASL) - MRI based measurement of brain perfusion, by the correlation of the results obtain during simultaneous measurements.

Research plan involves: development of the instrument based on DCS and trNIRS method, development of the algorithm for the correlation and comparative analysis for all techniques, in-vivo tests on healthy volunteers and patients.